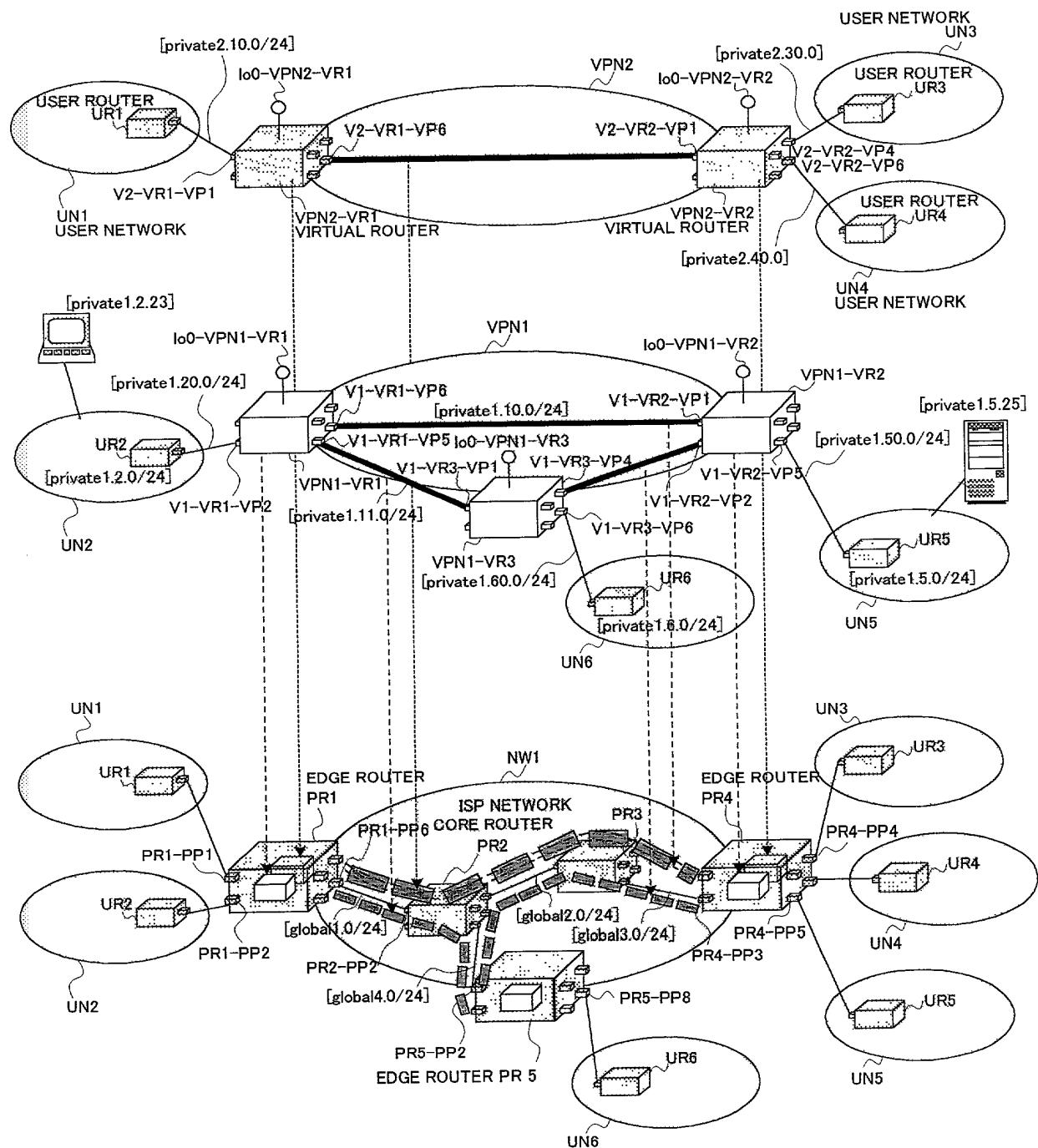


FIG.1



FG.92 (2)

FIG.2

VIRTUAL INTERFACE NAME	IP ADDRESS
V1-VR1-VP2	private1. 20. 1
V1-VR1-VP5	private1. 11. 1
V1-VR1-VP6	private1. 10. 1
V1-VR2-VP1	private1. 10. 2
V1-VR2-VP2	private1. 12. 2
V1-VR2-VP5	private1. 30. 1
V1-VR3-VP1	private1. 11. 2
V1-VR3-VP4	private1. 12. 1
V1-VR3-VP6	private1. 40. 1
lo0-VPN1-VR1	private1. 100. 1
lo0-VPN1-VR2	private1. 100. 2
lo0-VPN1-VR3	private1. 100. 3
lo0-VPN2-VR1	private2. 100. 1
lo0-VPN2-VR2	private2. 100. 2

FIG.3

INTERFACE NAME	IP ADDRESS
PR1-PP1	private2. 10. 1
PR1-PP2	private1. 20. 1
PR1-PP6	global1. 1
PR2-PP2	global1. 2
PR4-PP3	global3. 2
PR4-PP4	private2. 30. 1
PR4-PP5	private1. 30. 1
PR4-PP6	private2. 50. 1
PR5-PP2	global4. 2
PR5-PP8	private1. 40. 1
lo0-PR1	global100. 1
lo0-PR4	global100. 2
lo0-PR5	global100. 3

FIG.4

INTERFACE NAME	IP ADDRESS
UR1-PP1	private2. 10. 2
UR2-PP1	private1. 20. 2
UR3-PP1	private2. 30. 2
UR5-PP1	private2. 50. 2
UR6-PP1	private1. 30. 2

FIG.5

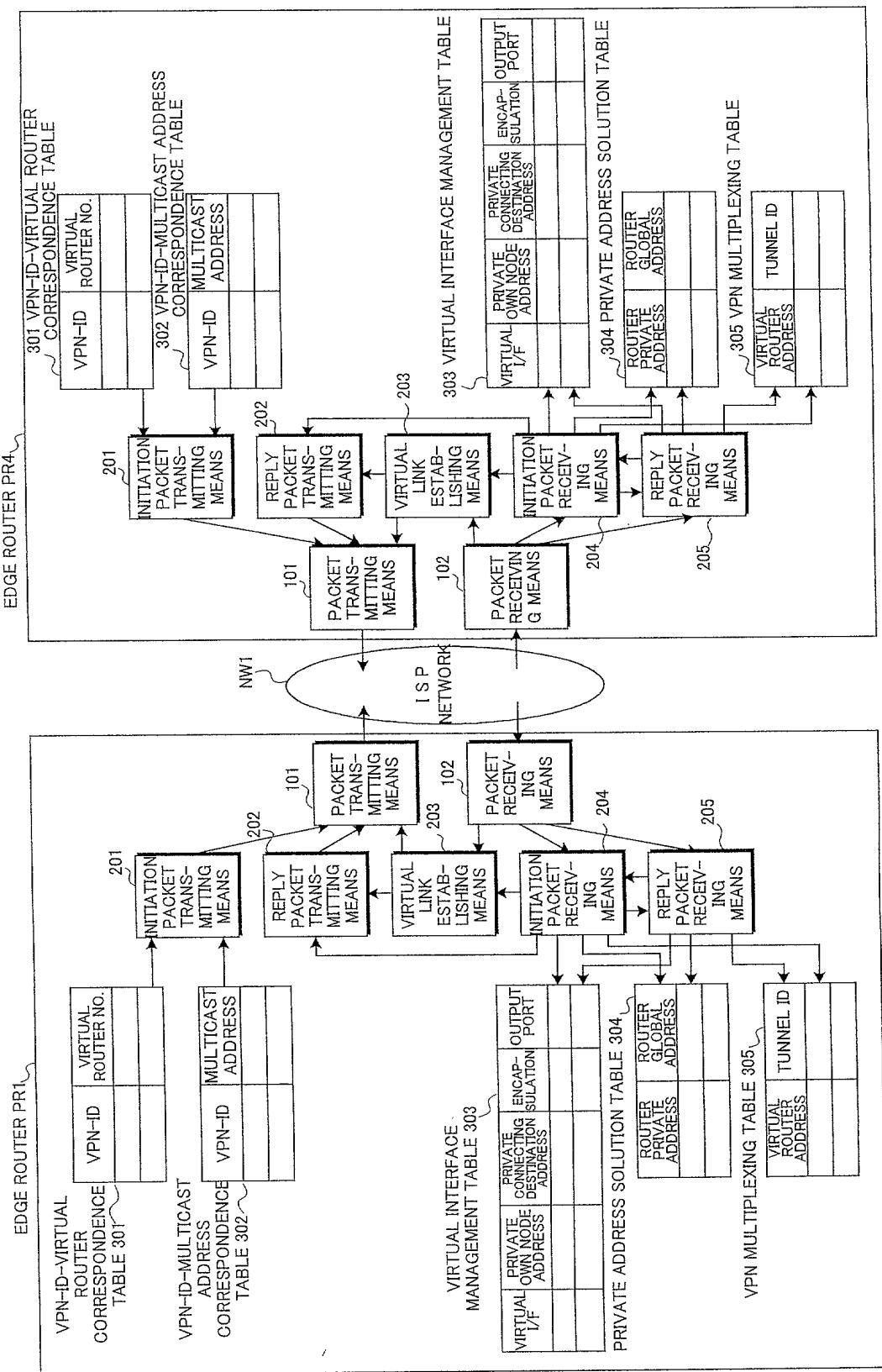


FIG.6A EDGE ROUTER PR 1

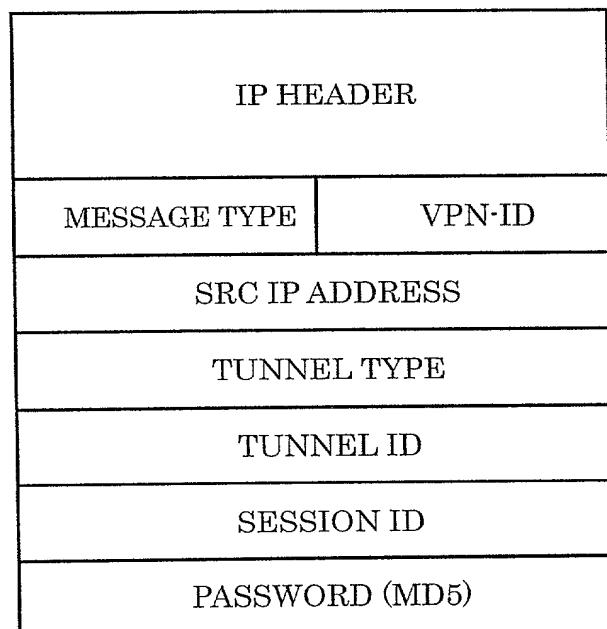
VPN-ID	VIRTUAL ROUTER
1	VPN1-VR1
2	VPN2-VR1

FIG.6B EDGE ROUTER PR 4

VPN-ID	VIRTUAL ROUTER
1	VPN1-VR2
2	VPN2-VR2

FIG.7

VPN-ID	MULTICAST ADDRESS
1	239.192.0.1
2	239.192.0.2
...	...
1024	239.192.4.0

FIG.8

09988956447766

FIG.9

MESSAGE TYPE	0
VPN-ID	1
SRC IP ADDRESS	private1.100.1
TUNNEL TYPE	0(L2TP)
TUNNEL ID	0
SESSION ID	0
PASSWORD	11111

FIG.10A UPWARD TUNNEL (PR4→PR1)

TUNNEL ID	105
SESSION ID	200

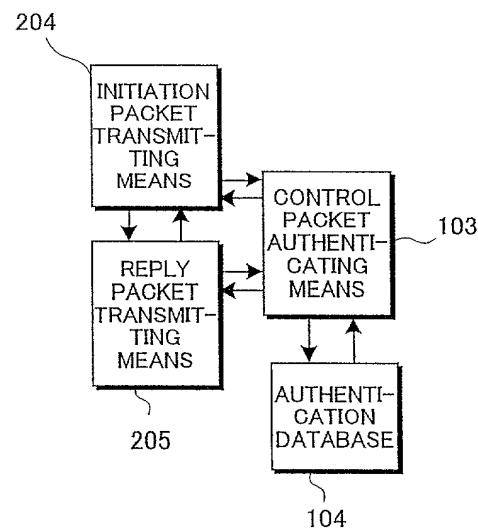
FIG.10B DOWNWARD TUNNEL (PR1→PR4)

TUNNEL ID	300
SESSION ID	202

FIG.11

MESSAGE TYPE	1
VPN-ID	1
SRC IP ADDRESS	private1.100.2
TUNNEL TYPE	0(L2TP)
TUNNEL ID	105
SESSION ID	200
PASSWORD	11111

FIG.12



09938956 44-1260

FIG.13

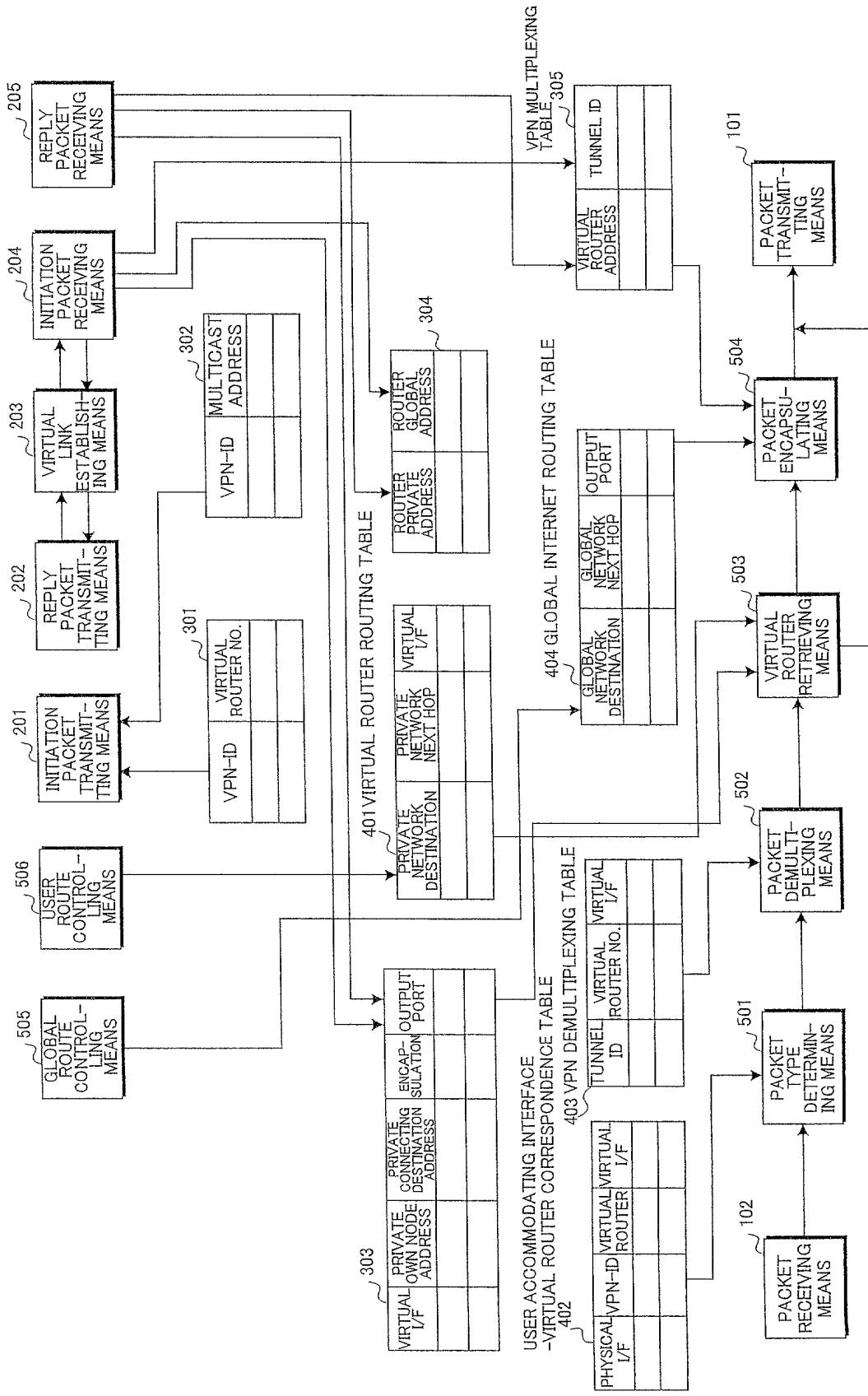


FIG.14

DESTINATION	NEXT HOP	OUTPUT PORT
global1. 0/24	Direct	PR1-PP6
global2. 0/24	global1. 2	PR1-PP6
global3. 0/24	global1. 2	PR1-PP6
global4. 0/24	global1. 2	PR1-PP6

FIG.15

DESTINATION	NEXT HOP	OUTPUT VIRTUAL INTERFACE
private1. 6. 0/24	private1. 100. 3	V1-VR1-VP5
private1. 5. 0/24	private1. 100. 2	V1-VR1-VP6
private1. 2. 0/24	private1. 20. 2	V1-VR1-VP2

FIG.16

PHYSICAL INTERFACE	VPN-ID	VIRTUAL ROUTER	VIRTUAL INTERFACE
PR1-PP1	2	VPN2-VR1	V2-VR1-VP1
PR1-PP2	1	VPN1-VR1	V1-VR1-VP2

FIG.17

VIRTUAL INTERFACE	OWN ADDRESS	CONNECTING DESTINATION ADDRESS	ENCAP-SULATION	OUTPUT PORT
V1-VR1-VP2	private1.2.1	private1.20.11	NO	PR1-PP2
V1-VR1-VP5	private1.10.1	private1.100.3	YES	--
V1-VR1-VP6	private1.11.1	private1.100.2	YES	--

FIG.18

PRIVATE ADDRESS	GLOBAL ADDRESS
private1. 100. 2	global3. 2
private2. 100. 2	global3. 2
private1. 100. 3	global4. 2

FIG.19

CONNECTING VIRTUAL ROUTER ADDRESS	DESTINATION	TRANSMITTING TUNNEL ID	TRANSMITTING SESSION ID
private1. 100. 2		300	202
private1. 100. 3		301	243
private2. 100. 2		1001	1201

FIG.20

RECEIVING TUNNEL ID	RECEIVING SESSION ID	RECEIVING VIRTUAL ROUTER	VIRTUAL INTERFACE
105	200	VPN1-VR1	V1-VR1-VP6
106	201	VPN1-VR1	V1-VR1-VP5
1102	1301	VPN2-VR1	V2-VR1-VP6

FIG.21
PRIOR ART

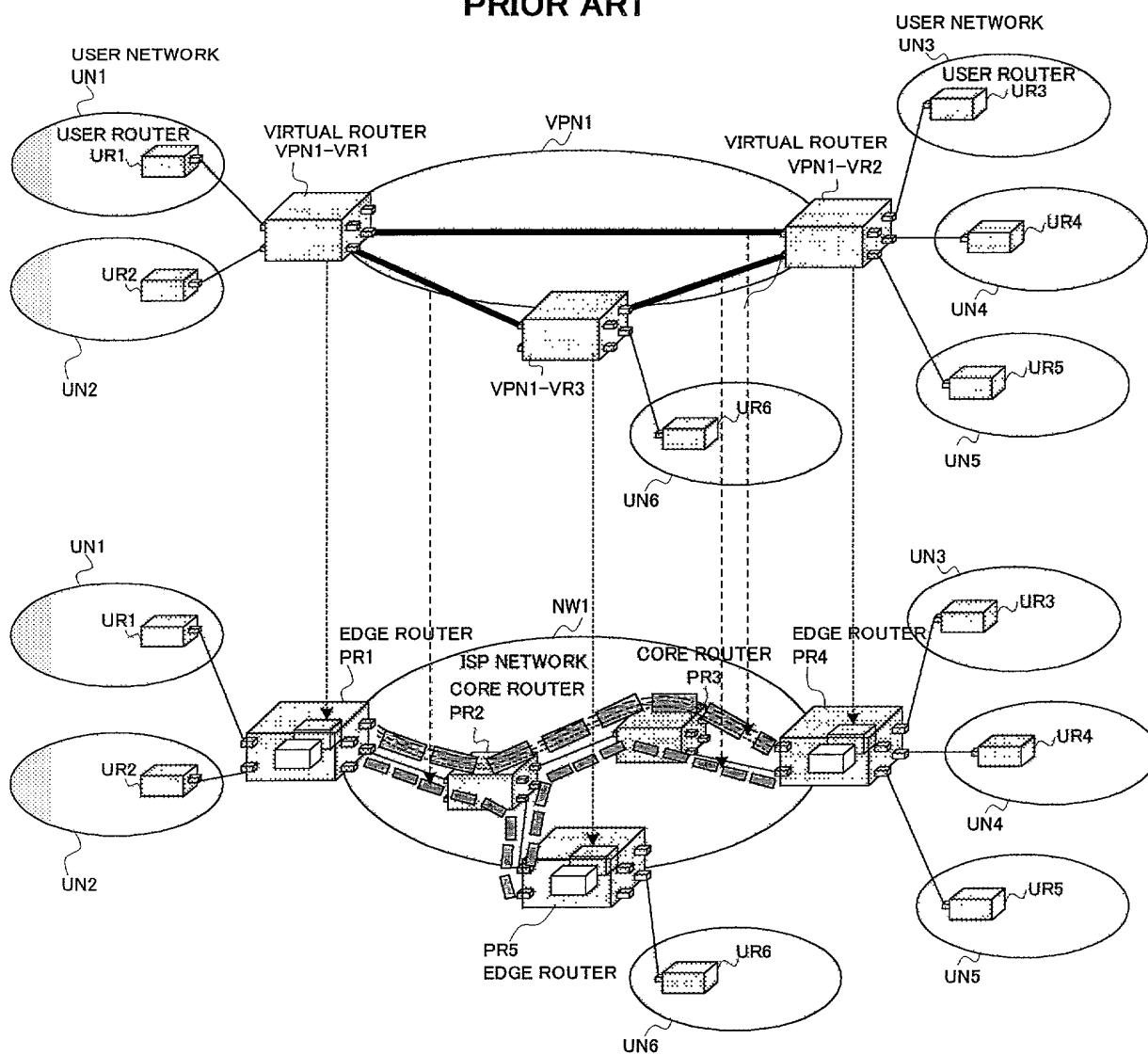


FIG.22
PRIOR ART

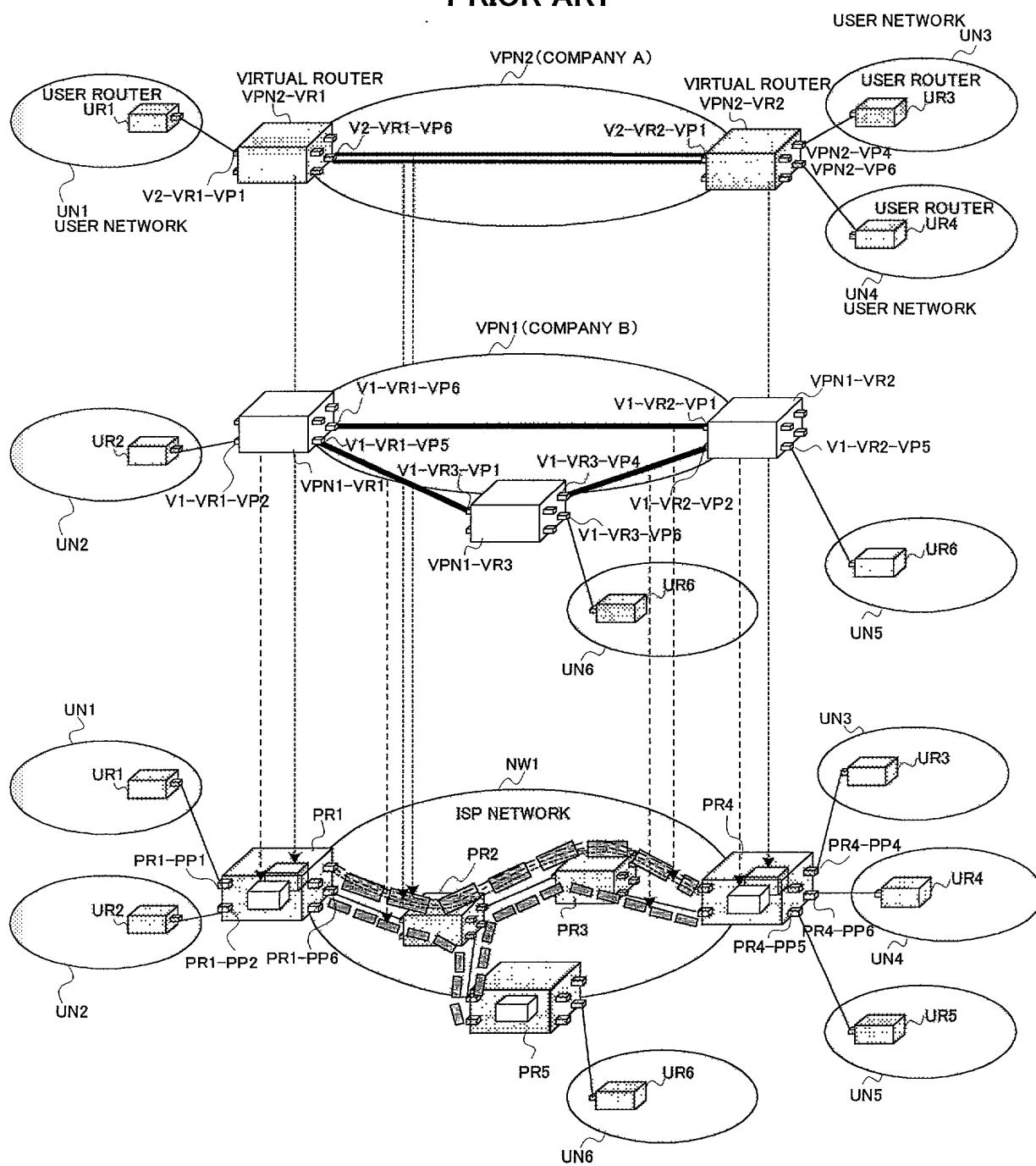


FIG.23

PRIOR ART

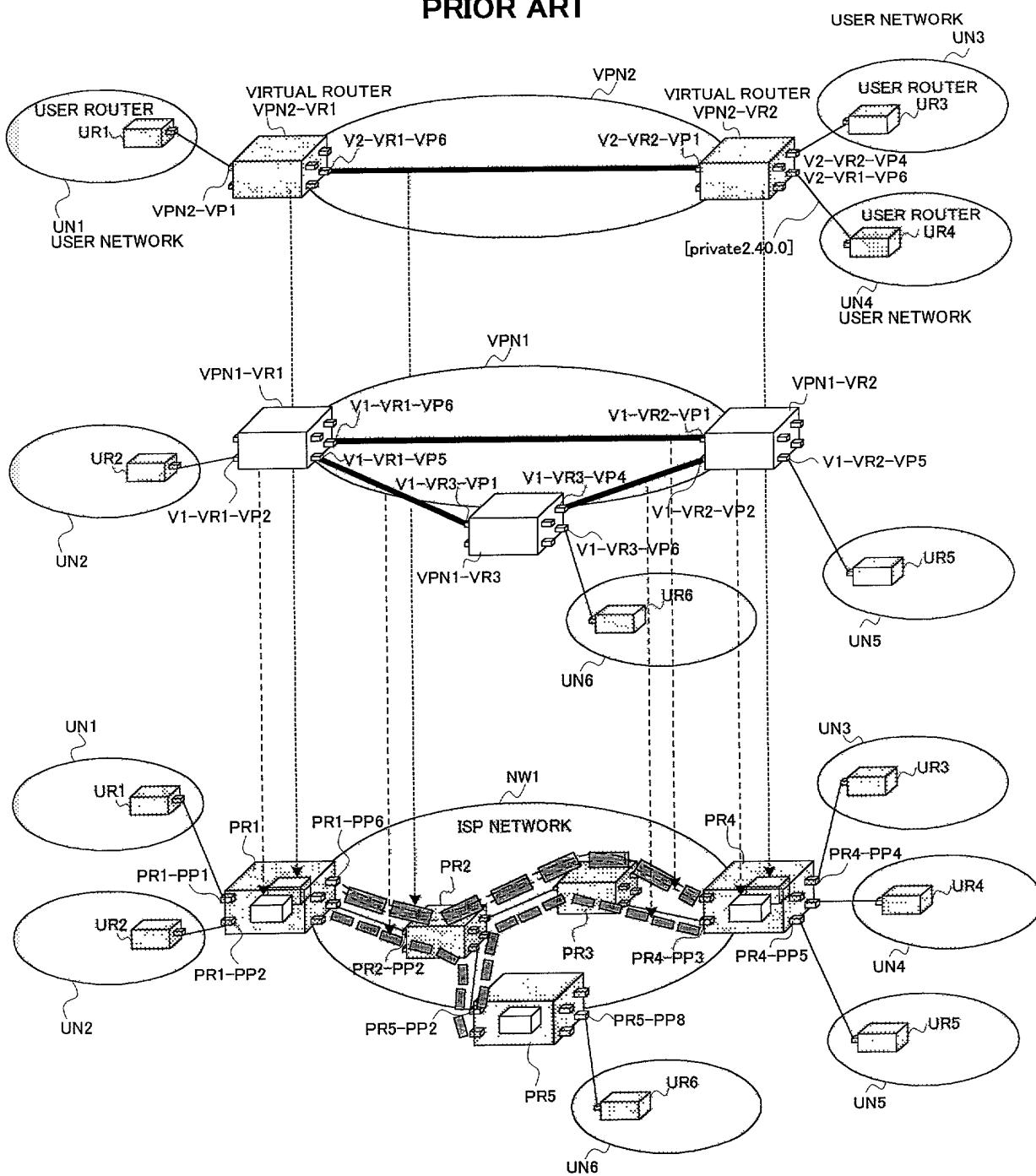


FIG.24
PRIOR ART

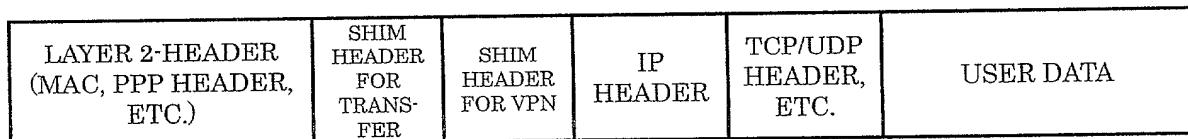


FIG.25
PRIOR ART

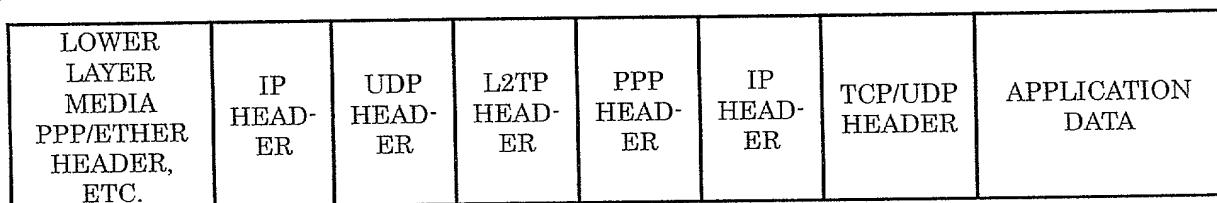


FIG.26
PRIOR ART

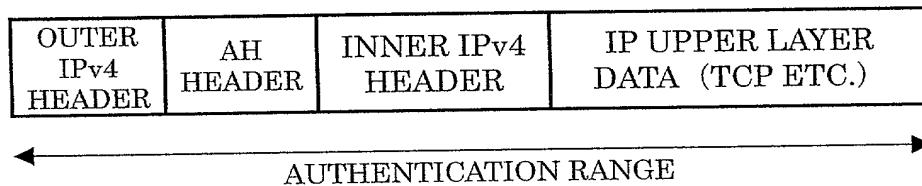


FIG.27
PRIOR ART

